

butylene. A butylene containing stream is separated from the olefin product. The butylene containing stream is contacted with a second zeolite catalyst to form a second olefin product. Claims 16-23 depend upon claim 15 and include all the elements of claim 15.

For the reasons that follow, Applicants believe all claims are in condition for allowance.

1. Statement of Commonly Owned Patents

The subject matter of the various claims was commonly owned at the time any inventions claimed in this patent was made.

2. Rejection Of Claims 1-14 Under 103(a) As Being Unpatentable Over Brown

Examiner has rejected claims 1-14 Under 103(a) as being unpatentable over U.S. Patent No. 6,048,816 ("Brown"). Applicant acknowledges with appreciation the Examiner's statement that Brown is silent as to using at least two zeolites. Brown does not teach or suggest using more than one zeolite as a catalytic material. In fact, Applicants are not aware of a single reference that teaches using more than one zeolite to convert oxygenates to olefins. It has been known for more than 15 years that zeolites can convert oxygenates-to-olefins. Never in that length of time has any reference taught or suggested to use more than one zeolite to convert oxygenates to olefins. It is hindsight to say that it would have been obvious to a person of ordinary skill in the art. This simple but long overlooked invention is patentable. It also has unexpectedly positive results.

Applicants were the first to discover that using more than one zeolites to covert oxygenates to olefins could have an unexpected benefit. Example 2 adequately documents this. Methanol is contacted with P-ZSM5 at about 560C. The product is collected and a portion of it is analyzed to determine its content. The composition is disclosed in Column 2 of Table 2. Then, a portion of the product is contacted under the same reaction conditions as above, except that is contacted with a second catalyst--ZSM-35. The astounding results are reported in

Column 3 of Table 3. The product that contacts two zeolites shows a 300% increase in ethylene yield. If a person of ordinary skill in the art would expect such results, they would not go silently unspoken. If it was obvious, even obvious to try, it would have been discovered by now. A patentable invention should not be scrutinized with hindsight. Applicant requests withdrawal of this rejection and allowance of claims 1-13.

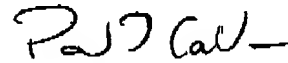
3. Rejection of Claims 1-11 and 13-23 Under 103(a) As Being Unpatentable Over Leyshon In View of Brown

Examiner has rejected claims 1-11 and 13-23 under 103(a) as being unpatentable over U.S. Patent No. 5,026,936 ("Leyshon") in view of Brown. The Examiner stated that Leyshon purportedly, discloses a process for production of propylene from a C4+ hydrocarbon feed including butenes in the presence of a zeolite catalyst such as ZSM-35. Examiner correctly stated that Leyshon does not disclose that the C4+ stream comes from an oxygenate conversion reaction. Leyshon does not teach contacting an oxygenate feed with at least two different zeolite catalysts to form an olefin composition. Leyshon does not teach contacting at least one zeolite with an oxygenate feed. Brown does not teach contacting an oxygenate feed with at least two different zeolite catalysts to form an olefin composition as required by claim 1. Neither reference teaches this.

Neither Leyshon nor Brown teach a step of contacting an oxygenate with a first zeolite catalyst to form an olefin product, separating a butylene containing stream and contacting the butylene containing stream with a second zeolite catalyst to form a second olefin product as required by claim 15. The benefit of both these claimed processes has been shown above to have a significant increase in ethylene yield. In the petrochemical industry, an increase in yield of 1-2% can save/earn millions of dollars annually. A benefit of this magnitude would not be expected and go undisclosed for this length of time. An increase of 1 wt.% ethylene yield would be desirable. A benefit as significant as is reflected in the data is never expected and unstated. Applicants request allowance of claim 1 and 15 as well as the claims that depend therefrom.

Applicants invite the Examiner to telephone the undersigned attorney if there are any issues outstanding which have not been presented to the Examiner's satisfaction.

Respectfully submitted,



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Date

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